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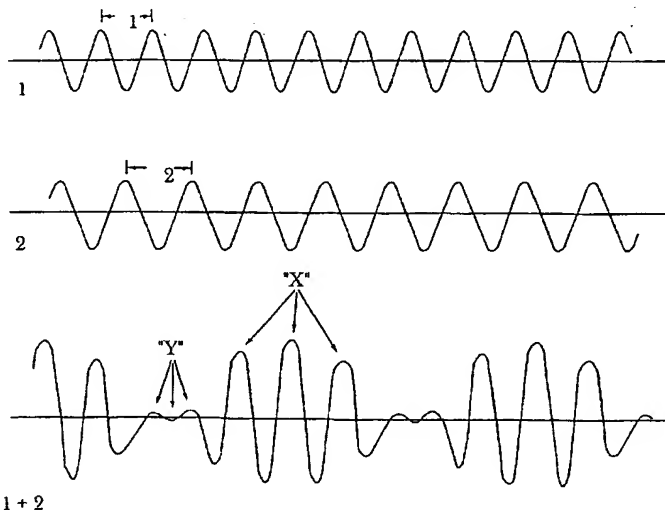
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(54) Title: HIGH EFFICIENCY SOLAR CELLS



(57) Abstract: The present invention relates to improvements in solar cell and solar panel photovoltaic materials which cause the solar cells/panels to operate more efficiently. In particular, the present invention focuses primarily on matching or modifying particular incident light energies (e.g., solar energies) within the photoreactive portion of the solar spectrum to predetermined energy levels in a solar cell photovoltaic substrate material (e.g., a semiconductor material) required to excite, for example, electrons in at least a portion of the substrate material in a desirable manner (e.g., to cause desirable movement of electrons to result in output amperages previously unobtainable). In this regard, for example, energy levels of incident light within the optical or visible light portion of the solar spectrum (i.e., the photoreactive portion of the solar spectrum) and thus, corresponding particular wavelengths or frequencies of incident light, can be at least partially matched with various desirable energy levels (e.g., electron band gap energy levels)

in a substrate material by filtering out at least a portion of certain undesirable incident light from the photoreactive portion of the solar spectrum that comes into contact with at least a portion of a surface of a solar cell photovoltaic substrate material; and/or modifying at least a portion of a solar cell photovoltaic substrate material such that the solar cell substrate material interacts more favorably with particular desirable frequencies of incident light in the photoreactive portion of the solar spectrum; and/or modifying particular undesirable light energies within the band of optical or visible light wavelengths to which the photovoltaic substrate material is sensitive prior to such undesirable light energies becoming incident on the photovoltaic substrate material to render such light energies more desirable for interactions with the photovoltaic substrate material.

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A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H01L 31/052, 31/04 US CL : 136/246, 257, 259; 257/432, 436 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 136/246, 257, 259; 257/432, 436 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y		7-13, 15, 16
X	US 4,151,005 A (STREBKOV et al) 24 April 1979 (24.04.1979), column 8, lines 29-52.	1-6, 14
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X	US 4,293,732 A (RANCOURT et al) 06 October 1981 (06.10.1981), column 3, lines 21-49.	1-6, 14
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Y		5, 7-13, 15, 16
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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